

1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception



### Basic features

<b>Approval/Conformity</b>	CE cULus WEEE
<b>Basic standard</b>	IEC 60947-5-2
<b>Principle of operation</b>	Photoelectric sensor
<b>Reference reflector</b>	BOS R-9
<b>Series</b>	R020K
<b>Style</b>	Square Connection 60°

### Display/Operation

<b>Display</b>	LED green: Power LED yellow: Light received
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### Electrical connection

<b>Cable diameter D</b>	2.40 mm
<b>Cable length L</b>	2 m
<b>Conductor cross-section</b>	0.09 mm <sup>2</sup>
<b>Connection</b>	Cable, 2.00 m, PVC
<b>Number of conductors</b>	3
<b>Polarity reversal protected</b>	yes
<b>Short-circuit protection</b>	yes

### Electrical data

<b>No-load current I<sub>0</sub> max. at U<sub>e</sub></b>	20 mA
<b>Operating voltage U<sub>b</sub></b>	10...30 VDC
<b>Protection class</b>	III
<b>Rated insulation voltage U<sub>i</sub></b>	50 V DC
<b>Rated operating current I<sub>e</sub></b>	50 mA
<b>Rated operating voltage U<sub>e</sub> DC</b>	24 V
<b>Ripple max. (% of U<sub>e</sub>)</b>	20 %
<b>Switching frequency</b>	800 Hz
<b>Turn-off delay t<sub>off</sub> max.</b>	0.63 ms
<b>Turn-on delay t<sub>on</sub> max.</b>	0.63 ms
<b>Voltage drop U<sub>d</sub> max. at I<sub>e</sub></b>	2.5 V

### Environmental conditions

<b>Ambient temperature</b>	-25...50 °C
<b>IP rating</b>	IP67

### Functional safety

<b>MTTF (40 °C)</b>	3378 a
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### Interface

<b>Switching output</b>	NPN normally open (NO)
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### Material

<b>Housing material</b>	ABS
<b>Material jacket</b>	PVC
<b>Material sensing surface</b>	PMMA

Photoelectric Sensors  
**BOS R020K-NS-PR11-02**  
Order Code: BOS020P

**BALLUFF**

**Mechanical data**

Dimension	7.7 x 26.8 x 13.5 mm
Mounting part	Screw M3

**Range/Distance**

Range	0...3 m
Rated operating distance $S_n$	3 m

**Optical features**

Ambient light max.	5000 Lux
Blind zone	25 mm
Light spot size	Ø 11 mm at 250 mm
Light type	LED, red light
Polarizing filter	yes
Principle of optical operation	Retroreflective sensor
Switching function, optical	dark-on
Wave length	660 nm

**Remarks**

The sensor is functional again after the overload has been eliminated.

Actuation object (target): gray card, 200 x 200, 90 % remission, lateral approach, approach direction vertical to lens axis plane.

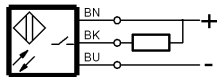
For additional information, refer to user's guide.

Order accessories separately.

For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

**Wiring Diagrams**



**Opto Symbols**

